Remarks/Arguments

1. Applicant appreciates Examiner's examination of the application, as evidenced by the Office Action of April 23, 2008. Claims 1 – 14 were examined and all have been rejected.

2. **Amendments to the Claims:** Claims 1 – 6 and 8 – 10 have been cancelled. Claims 7 and 14 have been amended to clarify the language with regard to the 35 U.S.C. § 112 rejection, discussed below. Claim 7 has been amended to be an independent claim and to include some of the language of previously presented claims 1 and 7 and now recites a device that has a pair of oscillatory members and a flow partition disposed between said oscillatory members to subdivide the flow path. This amendment is supported by FIG. 7 and language in paragraph [0046], all as originally filed. Claim 8 has been incorporated into claim 7. Claim 14 has been amended to more closely correspond to currently amended claim 7. New claim 15 – 19 contain subject matter relating to the piezoelectric elements from originally filed claim 7 and/or as described in paragraphs [0046] and [0047] of the Specification as originally filed. These amendments introduce no new subject matter and Applicants request approval of the amended claims.

3. **Rejection under 35 U.S.C. § 112:** Examiner rejected claims 1 – 14 as failing to comply with 35 U.S.C. § 112, first paragraph. Claims 1 – 6 have been cancelled. Applicant submits that the rejection of claims 7 and 14 and their dependent claims is improper. Language supporting the statement that the acoustic energy works on the total volume is found in paragraphs [0014] and [0047] of the Specification as originally filed. Furthermore, a person of skill in the art will understand that the acoustic energy generated in the device of the present application is exerted on 100% of the volume of

process fluid because the oscillatory members emanate acoustic energy in a direction transverse to the flowpath of the process liquid, which means that the process liquid necessarily and unavoidably flows through the acoustic energy field. As a result, 100% of the volume of process liquid is subjected to the acoustic energy generated by the oscillatory members. Applicant requests that this rejection be withdrawn.

4. **Rejection under 35 U.S.C. § 103(a) Based on Gaffney:** Examiner rejected claims 1 and 12 – 14 as being unpatentable over Gaffney, U.S. Patent 3,278,165). Claim 1 has been cancelled and claims 12 – 14 depend from claim 7, which Applicant asserts contains allowable subject matter. Applicant requests that Examiner withdraw this rejection.

5. **Rejection under 35 U.S.C. § 103(a) Based on Gaffney and Grange et al.:** Examiner rejected claim 6 as unpatentable over Gaffney and further in view of Grange et al. (U.S. Patent 4,129,387). Claim 6 has been cancelled.

6. **Rejection under 35 U.S.C. § 103(a) Based on Gaffney and Hemker:** Examiner rejected claim 1 as being unpatentable over Gaffney and further in view of Hemker (U.S. Patent 3,856,270). Claim 1 has been cancelled.

7. **Rejection under 35 U.S.C. § 103(a) Based on Gaffney and Branson:** Examiner rejected claims 7 – 11 as being unpatentable over Gaffney and further in view of Branson (U.S. Patent 3,222,221). Gaffney teaches a reed device for generating acoustic energy from turbulent flow. Gaffney fails to teach an oscillatory means that is a pair of piezoelectric members connected to an oscillatory circuit. Examiner relies on the Branson disclosure, asserting that it illustrates ultrasonically cleaning items within a liquid and teaches, among other things, that acoustic waves emanating from the

piezoelectric members inherently travel in a direction transverse to the longitudinal axis of the tank, and a flow partition disposed between the piezoelectric members (Branson figure 2:15, 17 and 22).

8. Despite Examiner's assertion, it is not inherent in the structure of the Branson apparatus that the acoustic waves emanating from the ultrasound transducers travel in a direction transverse to the longitudinal axis. The waves fan outward from the emanating face of the transducer, regardless of the direction of flow of the liquid and regardless of the overall geometrical structure of the apparatus. In other words, they emanate out toward the opposite wall of the chute and in a direction that is transverse to the direction of travel of the articles to be cleaned. The Branson drawings and description do not show acoustic waves emanating from the ultrasonic transducers as traveling in a direction transverse to the longitudinal axis of the tank. If the longitudinal axis extends from the side identified with "10" to the side identified with "33", then the waves emanate parallel to the longitudinal axis. On the other hand, if the longitudinal axis is defined by a straight line extending from the inlet to the outlet, then the waves emanate at an angle to the axis.

9. Branson also does not disclose a flow partition between the oscillatory members. Examiner refers to FIG. 2, numbers 15, 17, and 22 to support this assertion. 15 and 17 are the walls of the chute and 22 are the ultrasonic transducers. There is no flow partition between transducers. If Examiner interprets the wall of the chute to be a flow partition, then there is no flow partition that subdivides the flowpath into at least one flowpath between the partition and one of the oscillatory members and a second flowpath between the partition and the other oscillatory member.

10. The acoustic energy in the Branson apparatus is not generated by the flow of the liquid itself in the tank (10) or in the chute (18) , but rather, by means of the electro-acoustic transducers (22). The Branson device does not sanitize the liquid in the tank, but rather, cleans small particles that are dropped into the chute. The purpose of the liquid is to collect non-particulate contamination, such as grease and other impurities, that the acoustic energy dislodges from the small particles, so that they do not settle on the conveyor that is used to transport the cleaned articles out of the tank. See Branson col. 3, lines 50 – 64 and col. 4, lines 39 – 51.

11. The acoustic energy generated in the Branson tank does not work on the total volume of liquid in the tank, but only on the articles and liquid in the center of the chute. The acoustic energy generated does not work on the liquid that is outside the chute to any large extent, because the tank is so large relative to the size of the chute. As a result, the acoustic energy is quickly absorbed or dissipated and the greatest portion of the liquid is not subjected to the acoustic energy generated by the ultrasonic transducers. See Branson, particularly FIG. 2, which shows the size relationships of the chute and tank.

12. Examiner, in his comments on page 9 of the Office Action of April 23, 2008, says that Branson is combined with Gaffney to illustrate the use of piezoelectric devices where the flow of the acoustic energy is an inherent part of the device. It is well settled that, in order to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), the Examiner must show that some objective teaching, suggestion, or motivation in the applied prior art taken as a whole and/or knowledge generally available to one of ordinary skill in this art would have led that person to the claimed invention as a whole,

including each and every limitation of the claims, arranged as required by the claims, without hindsight, i.e., without recourse to the disclosure of the application at issue.

13. The use of ultrasonic devices to generate acoustic energy for cleaning instruments and small or irregularly shaped articles has long been known. The purpose of the inventive device is to generate acoustic energy using the turbulent flow of a process liquid, to clean the process liquid itself. Gaffney teaches that it is necessary to use a reed device to accomplish this. Branson teaches the use of an externally powered ultrasonic device to generate the acoustic energy. The two disclosures, whether alone or in combination, fail to teach 1) oscillatory members that emanate acoustic energy in a direction transverse to the flowpath of the process liquid, 2) exerting acoustic energy on a total flow of process liquid, 3) providing a flow partition between two oscillatory members; and 4) using a tank circuit to fly-wheel energy between the oscillatory members.

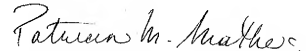
14. A person of skill in the art, knowing of the Gaffney and Branson disclosures and looking to develop a reedless device that would apply acoustic energy to the total volume of the process liquid flowing through the device, would not have found any teaching or inference in these two references that would have provided a suggestion or a motivation to replace the reed device of Gaffney with the ultrasonic cleaning method of Branson, plus add the flow partition. Without the reed, the only thing that Gaffney contributes to the prior art is a turbulent flow of process liquid through a conduit. The remainder of the elements of the present invention must, therefore, be taught by Branson, which is not the case.

15. Applicant submits that the presently amended claims contain allowable subject matter and respectfully requests that Examiner withdraw all rejections and allow all claims.

16. **Conclusion:** Claims 1 – 6 and 8 - 10 have been cancelled; claims 7, 9, 10, 11, 14 have been amended; and new claims 15 – 19 added. Applicant submits that the claims as currently presented overcome all rejections raised by Examiner and requests that claims 7 and 9 – 19 be allowed.

17. If questions pertaining to the present application can be resolved in a telephone interview or email correspondence, the undersigned kindly requests and welcomes such communication.

Respectfully submitted,



August 20, 2008

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